

CLAIMS

1. A method for sterilizing containers (2) of plastic material and for filling the containers with liquid
5 substances, including:

feeding said containers (2) in a succession along a feeding path (P), so as to bring the containers (2) into a covering structure (S) defining a closed aseptic environment containing a one-block apparatus for
10 sterilizing and filling the containers;

sterilizing said containers (2) in a first portion (6) of said apparatus (1), situated along a first section (T) of said path (P);

weighted filling of said containers (2) with said liquid
15 substance and subsequently closing the filled and weighed containers with pre-sterilized plugs/caps, in a second portion (12) of said apparatus (1), situated along a second section (TR) of said path (P), after said first section (T).

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2. A method as claimed in claim 1, characterized in that sterilizing includes:

diffusing a sterilizing substance inside each of said containers (2) fed along a first part (T1) of said
25 section (T);

diffusing pressurized steam inside each container (2), while the container is moved along a second part (T2) of said section (T) after said first part (T1); and

drying the inside of the container (2) by feeding
30 filtered sterile air through the opening of the container

while the container is moved forward along a third part (T3) of said section (T),.

3. A method as claimed in claim 2, characterized in that
5 said sterilizing substance is hydrogen peroxide H_2O_2 .

4. A method as claimed in any of the claims from 1 to 3,
characterized in that said second portion (12) is
separated from said first portion (6) by a wall (W),
10 being a part of said structure (S); with a circulation or
laminar flow of filtered/purified air (LAF - Laminar
Flow) inside said second portion (12).

5. A method as claimed in any of the claims from 1 to 4,
15 characterized in that said containers (2) are made of
LDPE (Low Density Polyethylene).

6. A method as claimed in any of the claims from 1 to 5,
characterized in that said filling substance is a liquid
20 substance used in food field.

7. A one-block apparatus (1) for sterilizing and filling
containers (2) of plastic material with liquid
substances, characterized in that it includes:

25 a unit (7) for sterilizing and drying the inside of the
containers (2);

a unit (13) for weighted filling said containers (2) with
said liquid substance; and

a unit (18) for closing said containers (2) with closing plugs/caps;

said one-block apparatus being contained in a covering structure (S) for defining an aseptic environment;

5 said sterilizing unit (7) and filling unit (13) being separated by a wall (W) of the covering structure (S); and

said filling unit (13) being subjected to a circulation or laminar flow of filtered/purified air (LAF - Laminar
10 Flow).

8. An apparatus as claimed in claim 7, characterized in that said sterilizing unit (7) includes a rotating turret (8) having a plurality of work stations (9); each of said
15 work stations (9) including pliers means (10) for holding and overturning the containers (2) and for bringing each container from a position with an opening is turned upwards to a position in which the opening is turned downwards, and vice-versa; and nozzle means (11)
20 connected to said pliers means (10) and entering said opening of said containers (2) to sterilize the containers inside.

9. An apparatus as claimed in claim 8, characterized in
25 that said nozzle means (11) have a triple inner canalization (11a, 11b);

with a central canalization of each of said nozzles (11) being connected to a tank of a sterilizing substance to diffuse said sterilizing substance inside said containers
30 (2); and

lateral canalizations (11b) of each of said nozzles (11) being connected alternately with a source of pressurized steam and with a source of purified sterile air, to wash and dry the inside of said containers (2) before their
5 filling.

10. An apparatus as claimed in any of the claims from 7 to 9, characterized in that said containers (2) are made of LDPE (Low Density Polyethylene).

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11. An apparatus as claimed in any of the claims from 7 to 10, characterized in that said filling unit (13) performs the weighted filling (net weight) of said containers (2) with a liquid substance used in food
15 processing field.